

835

N92-11053

Network Control Center User Planning System (NCC UPS)

Brian Dealy
Computer Sciences Corporation

December 1990

Space Network Control Conference on Resource Allocation Concepts and Approaches

00-1

DSTD
Code 520

Agenda

Ups System Overview

Scheduling Interfaces

Graphics scheduling Aid

GSFC / CSC

173

PRECEDING PAGE BLANK NOT FILMED

00-2

Hardware / software Configuration

Unix Platforms running X11R4 and OSF Motif 1.1.1

Posix compliant with a few exceptions

Uses TAE Plus 4.1 - 5.0, A GUI builder developed by NASA

Software to run on various host CPUs

GSFC / CSC

00-3

Replace each of the current Mission Planning Terminals (MPTs) as the user interface to the NCC.

This interface includes:

- Interactive entry of TDRSS schedule requests**
- Processing of batch request from other systems**
- Transmission of requests to the NCC**
- Receipt of confirmed schedules from the NCC**
- Reporting to users**

GSFC / CSC

- Provide input and validation of orbital data
- Provide UPS database management
- Provide interactive and batch input and validation of schedule requests
- Provide transmission of SARs to the NCC
- Provide reception of NCC messages and reporting to users

GSFC / CSC

00-5

- The Mission Coordinator:
 - Modifies database definitions
 - Adds and deletes users
 - Enters and modifies static data in the Translation Map and User Environment Tables
- The Mission Scheduler:
 - Reads orbital data from tape
 - Generates schedule requests
 - Transmits SARs to the NCC
 - Generates reports and queries
- The Mission User:
 - Generates predefined reports
 - Reviews scheduling information

GSFC / CSC

- The UPS user:
 - Provides ISRs and other supporting data
 - May be one of two types:
 - Interactive
 - Electronic
- The NCC:
 - Receives SARs from the UPS
 - Transmits confirmed schedules, rejected requests, and schedule updates to the UPS

8315(7)

GSFC / CSC

00-7

- Supports interactive functions
 - Information window
 - System administration
 - Mission setup
 - Orbital data operations
 - Automatic schedule request generation
 - Specific schedule request generation
 - Mission database maintenance
 - Report generation
 - Database queries
 - Message transmission

8315L(7)

GSFC / CSC

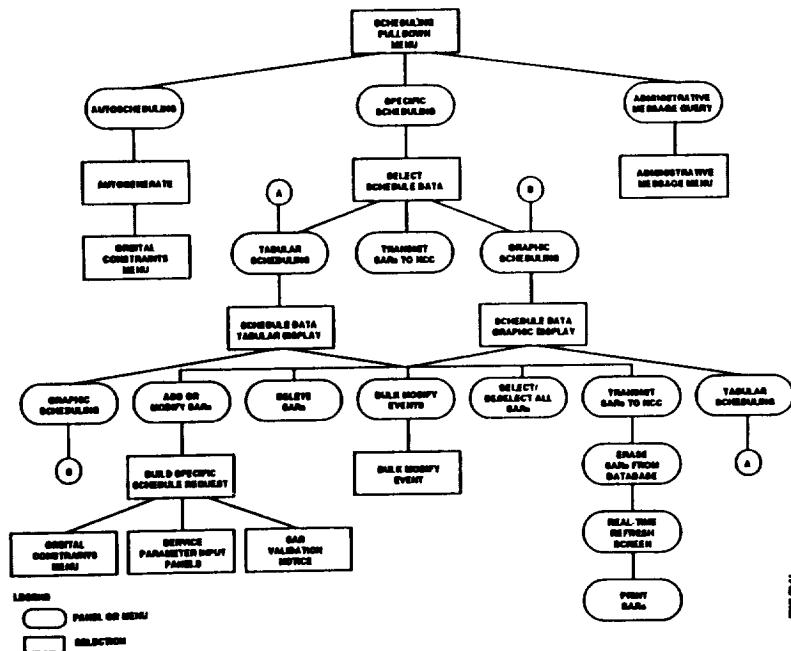
All Subsystems available from pulldown on information window

Attempted to limit interface depth to three levels where possible

Information which has been entered previously should default for lower level screens (e.g. start, stop time)

GSFC / CSC

00-9



GSFC / CSC

- Autoscheduling
 - Autogenerate schedule request (autogenerate main panel)
 - Orbital constraints menu (for adjusting orbital constraints)
 - Specific scheduling
 - Select schedule data (specific main panel)
 - Schedule data tabular display (for tabular scheduling)
 - Schedule data graphic display (for graphic scheduling)
 - Build specific schedule request (for adding/modifying SARs)
 - Orbital constraints menu (for adjusting orbital constraints)
 - Service parameter input panels (for editing respecifiable parameters)
 - SAR validation notice (for saving to database)
 - Bulk modify event (for bulk modifying SARs)

GSFC / CSC

00-11

Auto-Generate Schedule Request

Period Covered:	Start Time	Stop Time	(SCOS)
Exclusion Period : From	To	ADD	(SCOS)
(optional)(SCOS)			
143100500 143103000		REPORT	
		MODIFY	
SUPIDEN	Station	Prototype Event Id:	or Alias:
AI234GS AI234PS	TDE TDS		
		<input checked="" type="checkbox"/> Check Orbital constraints	
		<input type="checkbox"/> Adjust Orbital constraints	
Repeat Cycle			
<input type="radio"/> By Orbit: Every <input type="text"/> Orbit(s). <input checked="" type="checkbox"/> Next Orbit (if necessary)			
<input type="radio"/> By Time: Every <input type="text"/> (MSOCS)			
Repeat Cycle TOLERANCE Plus (MSOCS)		SAR Tolerance plus	minus
		<input type="radio"/> default <input type="text"/>	<input type="text"/> (MSOCS)
		<input type="radio"/> TSV	
		SEARCH	SEARCH

GSFC / CSC

Build Specific Schedule Request Panel

Build Specific Schedule Request [ADD] [?]

(SC03)

Event Start Time: (MMDDHHSS) Duration: (MMSS)
 (optional)

Event Stop Time: (MMDDHHSS) (optional)

SUPIDEN Station Prototype EVENT Id:
 TDE A30
 TDW (blank for config. code)
 TDS

Tolerance: plus minus
 default (MMSS)
 TSV

Check Orbital constraints Adjust Orbital constraints

Service Data Input

Config mode (AMM)	Alias	Relative Start (MMSS)	Relative Stop (MMSS)	Duration (MMSS)	Service type
<input type="checkbox"/>					

Currently selected services:

AM1	NAUTEXP	000000	002500	002500	NAU	<input type="button" value="EXCLM"/>
Bal	NAURXPT1	000030	002530	002500	NAR	<input type="button" value="EXCLM"/>
TDE	TRAS1501	001500	002500	001000	TRX	<input type="button" value="EXCLM"/>

[ENTER] [GRAPHIC]

GSFC / CSC

00-13

Select Schedule Data Panel

Select Schedule Data [?]

(SC16)

Selected Start : (MMDDHHSS)

Selected Stop : (MMDDHHSS)

or Duration : (MMSS)

Selection Criterion:

SUPIDEN	Station	ALL	CONFIRMED
<input type="text" value="ALL"/>	<input type="text" value="TDE"/>	<input type="checkbox"/> AUTOGEN	<input type="checkbox"/> REJECTED
<input type="text" value="A1210MS"/>	<input type="text" value="TDW"/>	<input type="checkbox"/> UNCONTACTED	<input type="checkbox"/> DELETED
<input type="text" value="A1210NT"/>	<input type="text" value="TDS"/>	<input type="checkbox"/> XMIT PENDING	<input type="checkbox"/> GENERIC
	<input type="text" value="ALL"/>	<input type="checkbox"/> XMIT w/ NO RESULT	<input type="checkbox"/> BULKMOD
		<input type="checkbox"/> XMITTED w/ RESULT	

[TABLE] [GRAPHIC] [CANCEL]

GSFC / CSC

Schedule Data Tabular Display (SC82)

Selected Start :	Event Start	Event Stop	Duration	Source	Req Type	UPS Status	MCC Status	Prototype Id	Prototype Alias	Configuration codes
S ADDSINC	122/05/00:00	122/05/20:00	0002:00	Batch	Add	Unit				

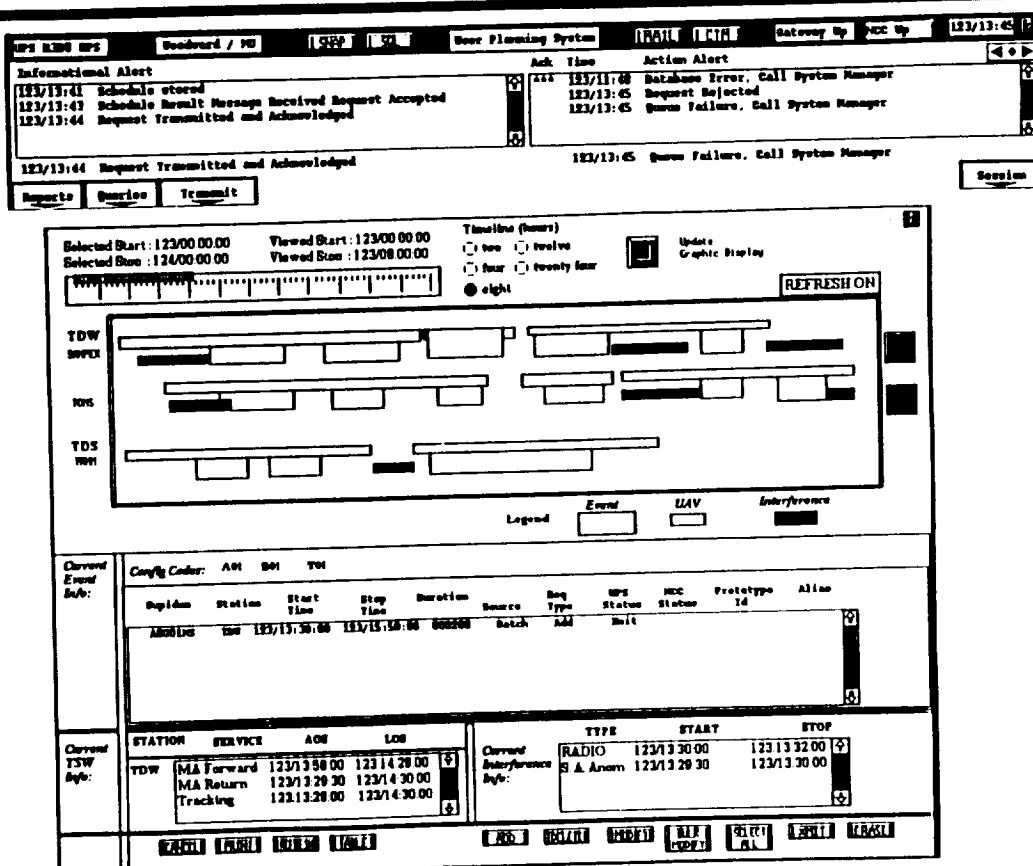
Buttons: TABLE, TIME, EDIT, PRINT, ADD, EDIT, SELECT ALL, EXIT, ERASE

GSFC / CSC

Bulk Modify Event (SC86)

Selection Criteria:	Request Status:	SUPIDEN	Station
Selected period: From <input type="text"/> (MM/DD/YY) To <input type="text"/> (MM/DD/YY)	<input type="radio"/> Request <input type="radio"/> Confirmed <input type="radio"/> ALL	<input type="text"/> A123456	<input type="text"/> TDE TDE TDS
FROM		TO	
<input type="radio"/> Time Slip Interval:	<input type="text"/>	<input type="radio"/> Station:	<input type="text"/>
<input type="radio"/> Prototype ID:	<input type="text"/>	<input type="radio"/> Prototype Alias:	<input type="text"/>
<input type="radio"/> Configuration Code:	<input type="text"/>	<input type="radio"/> Configuration Alias:	<input type="text"/>
<input type="radio"/> SUPIDEN:	<input type="text"/>	<input type="button"/> INDEX <input type="button"/> ERASE	

GSFC / CSC



00-17

Graphic scheduling aid design**Allow single or multiple event modification, deletion or insertion****Present tabular information in an easy to interpret format****Show interrelationships between services, events, interference and intermission conflicts for resources.****Provide selection / multiple selection via mouse and control key****Provide visual cues to differentiate TSWs, Events and Interferences.**

- Select/deselect single or multiple requests by clicking on graphic requests
- Provide action buttons (see select data tabular display panel)
- Change to tabular scheduling (Table option)
- Display TSW information for services related to a selected request (from the current event information window)
- Select display range based on viewed time
 - Select range of display using Radio buttons
 - Select start time using Viewed Start input field
 - Input Viewed Stop to override the timeline radio button set (optional)
 - Update graphic display to incorporate changes using Update Graphic Display button
 - Graphic display configuration depends on the number of missions and TDRSSs used
 - Scroll graphic display using the slider mechanism

GSFC / CSC